

REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 1-4, 8-14 and 16-20 are presented for consideration. Claims 1, 10, 13, 14, and 18-20 are independent. Claims 5-7 and 15 have been canceled without prejudice or disclaimer. Claims 1, 10, 13 and 14 have been amended to clarify features of the present invention, while claims 16-20 have been added to recite additional features of the subject invention. No new matter has been added.

Applicant requests favorable reconsideration and withdrawal of the rejections set forth in the above-noted Office Action.

Claims 1, 3, 5, 6, 10 and 15 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,559,584 to Miyaji et al. Claims 1-7, 10 and 15 were rejected under 35 U.S.C. § 103 as being unpatentable over either U.S. Patent No. 6,341,006 to Murayama et al. or U.S. Patent No. 6,451,507 to Suenaga et al. in view of U.S. Patent No. 4,690,528 to Tanimoto. Claims 8, 9 and 11-14 were rejected under 35 U.S.C. § 103 as being unpatentable over either the Murayama et al. patent in view of the Tanimoto patent and further in view of U.S. Patent No. 5,243,377 to Umatate et al. Applicant submits that the cited art, whether taken individually or in combination, does not teach many features of the present invention, as previously recited in claims 1-15. Therefore, these rejections are respectfully traversed.

In one aspect of the invention, independent claim 1 recites an exposure apparatus for illuminating a reticle with exposing light from an exposing light source via an illuminating

optical system and projecting a pattern, which has been formed on the reticle, onto a substrate via a projection optical system. The apparatus includes a vessel within which one of the illumination optical system and the projection optical system is placed, gas supplying means for supplying a desired gas to the vessel, vacuum exhaust means for vacuum evacuating the vessel in order to establish negative pressure in the interior thereof from atmospheric pressure, and control means for controlling a differential pressure between an internal pressure of the vessel and the atmospheric pressure so as not to exceed a differential pressure constant.

In another aspect of the invention, independent claim 10 recites a method of manufacturing a semiconductor device. In still other aspects of the invention, independent claim 13 recites a semiconductor manufacturing plant and independent claim 14 recites a method of maintaining an exposure apparatus that has been installed in a semiconductor manufacturing plant. These claims recite features along the lines discussed above with respect to independent claim 1.

Applicant submits that the cited art, whether taken individually or in combination, does not teach many features of the present invention as recited in independent claims 1, 10, 13 and 14.

The Miyaji et al. patent discusses supplying nitrogen gas to a vessel including an illuminating optical system and a projection optical system to provide an internal pressure of the vessel exceeding atmospheric pressure after a vacuum state is established by evacuating an interior of the vessel.

The Murayama et al. patent discusses supplying inert gas to an interior of a vessel at a predetermined pressure after a vacuum state is established by evacuating an interior of the vessel. By exhausting and supplying a gas from or to each of the plural spaces separated from a space of the vessel in parallel, a pressure of a final space of the plural spaces, when exhausting and supplying a gas sequentially from/to the plural spaces is provided to be not less than atmospheric pressure.

The Tanimoto patent discusses controlling atmospheric pressure of spaces among plural lens elements comprising a projection optical system on the basis of environmental information relating to conditions surrounding the projection optical system.

The Suenaga et al. patent discusses an air-conditioning apparatus for supplying a gas into each of a plurality of units in an exposure apparatus.

The Examiner relies on the Umatate et al. patent for teaching the use of a plurality of exposure apparatuses with a host management system, a network interface and a computer so that the apparatuses can be communicated by a computer network.

Applicant submits, however, that the cited art, whether taken individually or in combination, does not teach or suggest the salient features of Applicant's present invention, as recited in independent claims 1, 10, 13 and 14, including at least the feature of controlling a differential pressure between an internal pressure of a vessel and atmospheric pressure so as not to exceed a differential pressure constant. Accordingly, Applicant submits that independent claims 1, 10, 13 and 14 patentably define features of the subject invention. In addition to these claims being allowable, Applicant submits that new independent claims 18-20 patentably define features of the subject invention.

Specifically, the cited art is not read to teach or suggest at least the features of the present invention recited in those claims of vacuum evacuating an internal pressure of a vessel to pulsate the internal pressure of a predetermined frequency in a range from negative pressure to atmospheric pressure (independent claim 18), controlling a differential pressure between an internal pressure of a vessel and the atmosphere so as not exceed a differential pressure constant when the vessel is vacuum evacuated in order to establish a negative pressure in the interior thereof from atmospheric pressure (independent claim 19) or evacuating an internal pressure of a vessel to pulsate the internal pressure at a predetermined frequency in a range from a negative pressure to atmospheric pressure when the vessel is vacuum evacuated in order to establish a negative pressure in the interior thereof from atmospheric pressure (independent claim 20).

For the foregoing reasons, Applicant submits that the present invention, as recited in independent claims 1, 10, 13, 14 and 18-20, is patentably defined over the cited art, whether that art is taken individually or in combination.

Dependent claims 2-4, 8, 9, 11, 12, 16 and 17 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in their respective independent claims. Further individual consideration of these dependent claims is requested.

Applicant submits that this Amendment After Final Rejection clearly places this application in condition for allowance. This Amendment was not earlier presented because Applicant believed that the prior Amendment placed the application in condition for

allowance. Accordingly, entry of the instant Amendment, as an earnest attempt to advance prosecution and reduce the number of issues, is requested under 37 CFR 1.116.

Applicant also requests favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance of this application.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven E. Warner", is written over a horizontal line.

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